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ADDRESS,

PRINCIPALLY ON THE PROVINCIAL MUSEUM,

DELIVERED AT THE OPENING

OF THE

eight
TWENTY-~~SECOND~~ SESSION

OF THE

Nova Scotian Institute of Natural Science,

BY

PROFESSOR J. G. MACGREGOR,

PRESIDENT.



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OPENING ADDRESS.

BY PROFESSOR J. G. MACGREGOR, PRESIDENT.

Gentlemen :—In the few remarks which I have to make by way of opening the first meeting of the present session, the first place must be given to a reference to the loss with which the Institute has met during the past year, through the deaths of two of its oldest members,—Mr. William Gossip and Rev. David Honeyman, D. C. L.

MR. WILLIAM GOSSIP was born at Plymouth, England, in 1809, and came to Halifax at the age of 13 years. In 1831 he went to Pictou, where for three years he published and partly edited the *Pictou Observer*. He returned to Halifax in 1834, and established a bookselling and publishing business, which he maintained until his death. For some years after his return to Halifax, he edited and published a newspaper called *The Times*.

Mr. Gossip joined this Institute on the 2nd Feb., 1863, a few weeks after its formation. He was, therefore, practically an original member. In 1864 he was appointed Secretary, and he continued to discharge the duties of that office until 1871. From 1871 till 1874, he was a member of Council without office; from 1874 to 1878, Vice-President; from 1878 to 1880, President; and from 1880 to 1889, a member of Council, either without office or serving as Vice-President. For twenty-six years, therefore, and practically from the time of the Institute's foundation until his death, he had a hand in the management of its affairs. As a member of Council he was one of the willing few on whose shoulders the bulk of the work fell; and his special knowledge of printing and publishing enabled him to give specially valuable service in superintending the publication of our Transactions, with the editing of which he was for many years entrusted.

Mr. Gossip contributed four scientific papers to our Transactions, one geological and three anthropological. His activity and influence in the line of the Institute's scientific work, however, were much greater than is indicated by the number of his papers. Not being himself professionally a scientific man, he was diffident about putting into the form of a paper the results of his own observation and reflection. But being a very wide reader, and having not only large scientific interest, but also extensive scientific knowledge, the remarks he was accustomed to make on papers read by other members, were always full of information, and often highly suggestive; and most of our working members owe him a debt of gratitude for his intelligent and kindly criticism of their work.

DR. HONEYMAN was born at Corbie Hill, Fifeshire, Scotland, in 1817. He received his early education at the Dundee High School, from which he proceeded, at the age of 17, to the University of St. Andrews. At St. Andrews he devoted himself chiefly to the somewhat strange combination of oriental languages and natural science. The former, including Hebrew, Chaldee, Syriac and Persian, he studied with such marked success, that while yet a student, he was selected to teach Hebrew to a class consisting largely of clergymen. In natural science he quickly became so well known as a collector that he was employed to assist in providing a museum for the Watt Institution of Dundee.

Having completed his university studies he selected the church as a profession, and in 1836 entered the United Secession Theological Hall, studying first at Glasgow, and afterwards at Edinburgh. He was licensed in 1841, and joined the Free Church immediately after the Disruption. Five years afterwards he came out to Nova Scotia and was appointed Professor of Hebrew in the Free Church College in this city; but after a short professoriate he resigned his chair with the intention of going to the United States. A timely call from the Presbyterian congregation of Shubenacadie, however, induced him to remain in Nova Scotia; and a few years later he accepted the pastorate of the congregation of Antigonish. Meantime neither his theological and oriental studies, nor his pastoral work had quenched his early

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love of science; and after a few years, during which he had acquired in his spare moments a profound knowledge of the geology of the eastern part of the Province, he resigned his charge at Antigonish and decided to devote himself wholly to scientific work. He was not long without definite employment, his reputation as a naturalist leading to his appointment by the Nova Scotian Government to make a collection of our minerals for the London International Exhibition of 1862, and to superintend the whole of the Nova Scotian section at that Exhibition. He was afterwards sent on similar service to the Dublin Exhibition of 1865, the Paris Exhibition of 1867, the Philadelphia Exhibition of 1876, and the London Fisheries Exhibition of 1883. In 1869 we find him on the staff of the Geological Survey of Canada; and, on leaving the Survey, the Nova Scotian Government shewed its appreciation of his services by appointing him Curator of the Provincial Museum, of which he had been to a large extent the creator. He held this office until his death; and under his charge the Museum has acquired such dimensions as to demand a special building for the display of its collections.

Dr. Honeyman was elected a member of this Institute on the 3rd December, 1866. In 1870 he was made a member of Council, and in 1871 was elected to the office of Secretary, which office he held, at first singly and in late years jointly with a colleague who took charge of the Institute's records, until his death, a period of 18 years. How laborious the duties of this office were, few of us have any idea. They included not only the conducting of correspondence with the learned Societies abroad, with which we have been from time to time in communication, but also the receipt and preservation of the various publications which these Societies have sent us, and the transmission to them of copies of our Transactions in return. But these services, though large in themselves, form but a small part of what he did for us. For it is to the long series of valuable papers which he communicated to the Institute, and which we had the honour of publishing in our Transactions, that the reputation which our Institute has established abroad is largely due. These papers he might in many cases have communicated to other Societies with greater advantage

to himself ; but he was willing to forego the more rapid recognition of his own work, which would have been gained by publication in the Transactions of older Societies, in order that the reputation of our Society might be more quickly established. And frequently when the members of the Institute have been despondent as to its progress, his characteristic enthusiasm and his readiness to intrust to it the great bulk of the result of his scientific investigations, have stimulated their flagging zeal and urged them to renewed effort.

Dr. Honeyman's communications to our Transactions, including two which were found on his desk after his death and will be read during the present session, number fifty-seven. Of these, thirty-five were devoted to a study of the general Geology of Nova Scotia, one to the Geology of New Brunswick, and one to the Geology of the Magdalen Islands. Five were on Nova Scotian rocks, their polariscopic character and metamorphism, and on metalliferous sands. Six were devoted to a special study of the Glacial Geology of Nova Scotia. Eight dealt with other subjects, such as new and rare fishes, Nova Scotian Echinoderms, Chebucto Nullipores, Sponges, and other biological subjects ; and one was on Meteorites. Even this large number of papers does not represent the whole of his scientific activity ; for he published also many papers in the Transactions of other scientific Societies, the number and character of which I have no means of ascertaining. He published also a few years ago a small book called "Giants and Pigmies," intended to facilitate the study of the collections of the Provincial Museum. During the last year of his life he was engaged chiefly in a microscopic study of organisms found attached to submarine cables, and entrusted to him by Capt. Trott, of the S. S. *Minia* ; and the result of this study was the discovery of what appear to be a large number of marine sponges hitherto unknown.

Dr. Honeyman's scientific work was highly appreciated both at home and abroad. He received the honorary degree of D. C. L. from King's College, Windsor. He was a Fellow of the Royal Society of Canada and of the Geological Society of London, a Member of the Geological Society of France, an

Honorary Member of the Geologist's Association of London and of the London Society of Science, Letters and Art, and a Corresponding Member of the London Society of Arts and of the London Horticultural Society; and he was recently selected as one of a limited number of original members of the Geological Society of America. He was awarded the Mantuan Medal for scientific eminence, and received various medals in connection with the International Exhibitions which he attended.

To the genial kindliness of Dr. Honeyman's disposition, to his readiness at all times to give assistance from the stores of his own experience and knowledge, and to the value of his enthusiastic encouragement in the prosecution of difficult work, all our younger members will be ready to bear witness; and I am sure that all of us feel that through his death we have lost not only an able leader in our scientific work, but also a warm personal friend.

Dr Honeyman rendered important scientific service, not only to our Institute, but also to the country at large, by the energy with which he discharged the duty to which he was appointed nearly twenty years ago, of building up the Provincial Museum. And since, in consequence of his death, some action must be taken on the part of the government, with regard to the collections which he had been successful in making, it seems to me to be appropriate that I should bring before you, on the present occasion, some considerations as to what that action should be.

At the outset it may be well that I should state such facts as I have been able to collect, with regard to the Museums of other countries, though I regret very much that, partly owing to the defects of the libraries to which I have access, and partly to the fact that but few collections of museum statistics seem to have been made, the information available is very meagre. The British Association Reports on Provincial Museums show that there are in the United Kingdom 211 Museums, exclusive of those of the metropolis. They are of very different grades of efficiency, 56 being of a high order, 55 being placed in the second class, 63 in a third, and 30 in a fourth. Nearly half of them are of a general character, having no special reference to the district in which they are located;

and nearly half contain both local and general collections. With regard to their contents, nearly half are devoted for the most part to Geology, about one fourth are devoted largely to Zoology, and about one tenth are chiefly archæological. So far as support is concerned, 50 of them draw their funds from a special municipal rate; 63 are supported by local societies and institutions; 30, by colleges; 5, by general Borough funds; 8, by government, and the balance by endowments, annual subscriptions, &c. The United Kingdom thus possesses quite a large number of Provincial Museums; but the committee from whose report I have quoted, state that they have not found one which attained to their ideal of what such Museums ought to be; and with the object of stimulating them to greater efficiency, they sketch the ideal at which such Museums should aim. That the value of the influence of such Museums is recognised, is shown in the report of the Royal Commission on Scientific Instruction which recommended, in 1874, that efforts should be made to supply the deficiencies of existing Museums, and that typical Museums should be organised in connection with Science Schools throughout the kingdom.

With regard to the Museums of the United States, I have no definite data later than 1876. The reports of the Commissioner of Education shew that between 1872 and 1876, the number of Museums reporting to the Education Office had increased from 50 to 79, that the number connected with institutions of learning had increased from 35 to 44, and that the annual expenditure on Museums had increased from \$46,550 to \$145,520. Though definite statistics are not available for a later date than 1876, it is well known that of late years our neighbours have been making great progress in Museum organization. In a report made by Mr. Ball of the Museum of Science and Art of Dublin, he states that he was much impressed with their system, thoroughness and astonishing vigor, and with the gigantic extensions of their spheres of usefulness to which they looked forward in the future.

In the Australian Colonies, Museums are regarded as important factors in promoting industrial progress; New South Wales, for example, having sent a Commission to Europe some years ago to

report on European Museums, and having subsequently, in pursuance of the report of that Commission, established in addition to the General Museum which it already possessed, one of a technological character, intended to develop into a technological school.

I have been able to obtain no definite statistics as to the Museums of the continent of Europe; but every traveller is aware that it is hard to find a town of any importance which does not boast of collections of more or less value, while the large towns and the universities possess collections often of enormous extent and involving great expenditure. In some countries, more especially in France, district Museums, containing collections illustrating the natural history and the industrial state of comparatively small districts, exist in considerable numbers, and are found to be of great utility from an industrial point of view.

These Museums, which are thus found in such large numbers in civilised countries, are of course of very different degrees of efficiency and of quite different types. Some do not rise above the popular conception of a museum as being a collection of curiosities, affording amusement rather than instruction; and it is museums of this kind which bring discredit on the whole class. They are useless and should be cut down as cumberers of the ground. The majority, however, answer to a greater or less extent to the true conception of a museum, as consisting of collections illustrating in a systematic manner the present state of human knowledge in one or more departments, and the various stages, but more especially the present stage, of the activity of one or more sections of the human race. It will be obvious that to illustrate adequately the present state of knowledge in all departments, and present and past stages, of the activity of the whole human race, would require a far greater expenditure than even the wealthiest nations have so far seen their way to make for this purpose. Most museums, therefore, are forced to restrict themselves to special objects, and in consequence their varieties are very numerous. We find some devoted to single departments of knowledge, as geological or zoological museums; some

devoted to groups of sciences, as Natural History Museums. In other cases, while the illustration of all departments of knowledge may be aimed at, the mode of illustration may be general, not entering into great detail. Of this kind are the museums established for educational purposes in schools and colleges, sometimes called typical museums, because they aim at securing only typical or representative examples of the various classes into which animals, plants, &c., have been divided. Then we have Art Museums, which aim at illustrating the artistic department of human activity, and which provide usually specimens showing the gradual development of art in past ages, the Art Exhibition being a temporary museum intended to illustrate the present state of artistic activity. Technological or Industrial Museums are also devoted to human activity, but in the department of industry. They may be restricted to some one industry, or some group of industries, or to the industrial development generally of some one country or town, or even to the present industrial condition of a larger or smaller section of the human race.

The expenditure of the various civilised nations on museums I have no means of ascertaining. But even a casual visit to the metropolitan museums of Europe and America will show, that for them alone, it must reach a very large figure; while the smaller amounts devoted to sustaining the numerous provincial or local museums referred to above, must in the aggregate reach an enormous sum. Thus the Edinburgh and Dublin museums cost about £10,000 a year each, while the English provincial museums of the first class are found to involve an annual expenditure of at least £800 a year each. In all such services connected with the education of the people, and the development of industries, the expenditure of the continental nations of Europe is on a much more liberal scale than in Great Britain. On the whole then, the world's annual expenditure on museums must reach an enormous figure.

Now, even wealthy nations do not expend money thus lavishly without definite objects; and the objects which are aimed at, and which experience shows to be secured, by the founding and maintenance of museums, are three, viz., (1) the promotion of

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scientific research. (2) the promotion of industrial development, and (3) the promotion of education, including the systematic education of students, and the general educational elevation of the masses. If then we advocate a continuation of the expenditure which the Province has for some years made on its museum, and still more, if we advocate increased expenditure, it must be shown that one or more of these objects which properly regulated museums are found to secure, are of importance to us, and are likely to be secured by us in our peculiar circumstances.

That industrial development is of importance to us goes without saying. Our Province is possessed of great, but only slightly developed, mineral wealth. We have fertile valleys and an abundant and varied vegetation. Our hills are admirably adapted for grazing purposes, and our seas and rivers are abundantly supplied with fish. Nevertheless, our industrial development is still in a comparatively low state. Large quantities of some of our raw materials are exported in the raw state; others are neither exported nor worked up by ourselves; and the utilisation of waste products is only very partially carried out. All means, therefore, which are likely to accelerate the growth of our industries, are of importance to us, and should, if possible, be adopted. Now for this purpose it is clearly necessary that we should know ourselves, and make known to others, what raw materials we actually possess. And it is desirable also that we should have some means of making known to what extent and by what methods these raw materials are being worked up into finished products. Printed descriptions are doubtless of much value. But the best of all ways of obtaining this end is to collect in one place actual specimens of all our raw materials, as well as of finished products, specimens of these products in the various stages of their manufacture, and, in some cases, specimens, either actual or in model or drawing, of the tools, appliances, etc., by which their manufacture is carried on. Such a collection would constitute a technological or industrial museum. It would form a well selected permanent exhibition of the natural products of the province, and of the state of its advancement in the

application of skilled labor to them. It would give to our youth the means of becoming acquainted, without undue expenditure of time and money, with the natural resources of their own country; and to travellers it would show what inducements the Province offers for the investment of capital.

Were funds available, it might be utilised in very special cases, as similar museums have been in France, for the introduction of improved industrial methods, the finished products obtained by these methods, and even models and descriptions of the appliances involved in them, being procured and exhibited; and it might be made to exert a beneficial influence on industries which are to a certain extent artistic, by including in its scope more or less extensive collections of specimens of artistic workmanship.

But while we have very considerable natural resources already known, it must not be forgotten that our knowledge of them is still incomplete, and that we may have stores of valuable material not yet discovered. Hence we must not rest satisfied with our present knowledge, but must make provision for its extension. In other words the promotion of scientific research is essential to the promotion of our industrial development. The advancement of science is of course a good thing in itself; and where wealth has been accumulated no better use can be made of it than in promoting research. But even if it be granted that our accumulated wealth is not sufficient to admit of our devoting any part of it to the advancement of science generally, it may still be true that if we wish to discover and develop the resources of our country, we must secure its advancement in some special departments. We already know some of our useful plants and animals. We must know them all; and for this purpose we must make a systematic study of the zoology and the botany of the Province. So, also, we now know some of our useful minerals and some of the places where they are to be found. We must find out all such minerals and all the places where search for them is likely to be successful. That is, we must make a thorough study of our mineralogy and of our geology. Now, the first essential of progress in knowledge is acquaintance with what is already

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known; and that requires, among other things, that we should have available for study a complete collection of all the animals, plants and minerals, which have so far been discovered in the Province, and collections of rocks, fossils, etc., illustrating what is already known of the geological structure of the country. But the animals, plants and minerals of any one country can be adequately studied only in relation to other members of the great biological and mineralogical classes found existing elsewhere. Hence it is desirable also that we should have typical collections in the departments of zoology, botany and mineralogy. And as the geological structure of our Province can be adequately studied only by reference to that of other parts of the earth's crust, it is desirable also that we should possess more or less extensive collections shewing the geological structure of other lands. In short, for the adequate promotion of our industrial development, we require not only an industrial museum, but also what is called a natural history museum, containing a complete collection to illustrate our own natural history and geology, and epitomised collections to illustrate these sciences generally.

The knowledge of our natural resources which, by the aid of such a museum, would be gradually obtained, would exist in the minds of investigators and in printed books. It is further necessary, if our industrial development is to make rapid progress, that it should be rendered available to our youth. Hence the treasures of our museum should be so arranged that our young men and our teachers may be able to make this knowledge their own. The museum, in fact, must be so arranged as to serve an educational purpose. This is the more necessary because the endowments and incomes of our schools and colleges are too small to enable them to provide collections sufficient for any thing more than the most elementary study; and young men who are anxious to obtain this knowledge must look therefore to the Provincial Museum. Fortunately no additional collections beyond those already mentioned, would be necessary for this purpose; for probably the collections I have sketched as proper to be aimed at, are more than we will be able to secure for a

very long time. But whatever we possess, be the collections small or large, may be utilised for educational purposes by judicious arrangement. It is only necessary that the Curator of the Museum should have a wide knowledge of natural science, and experience in the fine art of arranging and labelling specimens, recognizing and giving prominence to typical ones, and relegating others to less conspicuous positions.

To those of you, who are familiar with our Museum, it will be evident that the collections, which it seems to me we ought to aim at making as soon as possible, are far in advance of what the Museum now possesses. No one who knew the late Curator could help admiring the enthusiasm and energy which he exhibited as a collector; but lack of assistance prevented him from bringing his local collections to completion, lack of funds compelled him to be satisfied with the most meagre typical collections, and lack of space made proper arrangement an impossibility. No one deplored more than he, the fact that owing to the difficulties in his way, it was impossible for him to carry the Museum to a higher stage of efficiency. Now, however, that a new departure must be made, it is well to ask what must be done to give the Museum the efficiency which the considerations I have brought before you seem to show it ought to possess.

First, then, it must be noted that the collections which have been accumulating during the last twenty years, though neither so complete nor so varied as is desirable, are of very great value, and that they are stored in a room which is so small that a study of them is attended with the greatest difficulty, and in the case of many parts of them is well-nigh impossible. Now the expenditure of large sums of money on the accumulation of a museum which has practical value only in so far as it can be studied, and the subsequent storing of it in such a way that a study of its contents is attended with the greatest difficulty, would seem to be a policy of folly. Hence it goes without saying that the museum must have a new local habitation, if the expenditure already made on it is to be justified, and still more, if the policy which has been followed for the last twenty years of continually adding to the collections, is to be continued. Let it be noted, however, by those

who are jealous of demands upon the public purse, that the building which is necessary is not by any means so large as might appear at first thought, even if it be granted that we ought to aim at securing all the collections which I have specified as desirable. For of these collections, we have, and for some time to come are likely to have, but a small portion; and of those which we now have, and even of those at which I think we should aim, but a small portion would need to be displayed in cases so as to be available for use by the many. Very considerable portions, which would be used only by the investigator, whether scientific or industrial, might be stored in drawers, thus being readily available and yet occupying but little room. Judicious selection may compress a large collection into comparatively small space. Thus a relatively small building or section of a building, capable however of extension in the future, is all that is required.

But collections and a building to contain them, form only the body of the museum. Its soul is the director or curator; and as the body without the soul is dead, so collections, however large and well housed, are comparatively useless without an efficient curator. This is at once apparent if we consider what his duties are. For he has (1) to preserve his collections, allowing neither moth nor rust to corrupt. He has (2) to arrange them, taking into consideration the class and capacity of the persons for whose use the museum is intended, the extent and variety of the collections, the relative importance of the different departments of science to the needs of the community, and the space which is placed at his disposal. He has (3) to label his specimens so as to direct the attention of the observer to the main characteristics of the objects, and to show their relation to the great classes in which similar objects are found naturally to arrange themselves. He has (4) to add to his collections; and in our case since a corps of paid collectors is out of the question, that means that he must himself make a scientific study of the province, going from time to time to different districts and making collections of its plants, animals and minerals. And (5) if the museum is to be provided with an industrial department he must familiarize

himself with the industrial state of the Province, and know how to make a judicious selection of its raw materials and of its finished products. The successful performance of these varied duties, which is essential to the utility of the museum, demands not only manual dexterity and general good judgment, but also a wide knowledge of the natural sciences and a working acquaintance with their economic aspects. In our special circumstances it is desirable also that the curator should possess not only the general knowledge of the natural sciences necessary for museum work proper, but also a special knowledge of Geology and Mineralogy. For our mineral resources are extensive and varied, and give promise of yielding a rich reward to careful research. And consequently it has been the wise policy of our government in the past to combine with the office of Curator of the Museum that of Provincial Geologist.

But while the primary duties of the curator are to make and preserve collections and to render them available and useful to the public, as well as to push forward especially the knowledge of our local geology, he may be expected also to make his museum an active centre for the diffusion of useful knowledge, by providing courses of lectures in connection with it. The Royal Commission on Scientific Instruction, the British Association committee on provincial museums, and the New South Wales commission on museums and technical schools all recommend this policy. And even apart from their authoritative utterances, it is sufficiently obvious, that when at considerable expense, collections have been made which form one of the main requisites of systematic instruction, such instruction should also be provided. In our community a certain demand for such teaching already exists. For some years the appreciation of the value of scientific knowledge as a basis for technical pursuits has been steadily growing, and the advocates of the founding of a technical school have gradually been gaining more and more sympathy and support. But the founding of such a school, fully developed at the outset, would involve a large expenditure, whereas the number of students who would make use of it would in the first few years be probably small and fitful. Were such a school

founded all at once, the public, which is impatient of expenditure without immediate results, would not unlikely conclude in a very few years that the expenditure was too great for the results; and the legislature might find it necessary to withdraw the grant by which the school was sustained. In such matters it is good policy to hasten slowly, and in the case of the technical school the best mode of slow hastening would seem to be to develop our museum with an efficient director at its head, and to let him, by organising courses of lectures and practical classes in connection with it, make it the nucleus about which a technical school would gradually grow, as the demand for scientific instruction would gradually increase. As the importance of our mineral resources would seem to imply that the director should have a special knowledge of Geology and Mineralogy, these would naturally be the subjects in which he might be expected to give instruction himself. In other departments lectures might be given at the outset by volunteers, the lecture room and appliances being furnished in the museum itself. As little additional expenditure would be involved in the provision of these lecture courses, the occasional lapsing of classes through lack of students would, so far as the permanence of the school is concerned, be of no moment. Gradually the occasional classes would become regular, and the small classes would become large; and ultimately it might be hoped the demand for instruction would become so great that the volunteer lecturers might be replaced by a permanent staff. This seems to be in our present circumstances the only feasible way of obtaining the technical school of which we stand so much in need.

The Curator might make the Museum an active educational centre in another way, viz., by distributing among the academies and high schools of the Province small collections illustrating the various departments of natural history. Such a course would facilitate to a very great extent the introduction of science teaching into our schools.

If it be admitted that the development of our museum, involving as it does the appointment of an efficient curator and rendering possible the provision of scientific instruction, is a

desirable policy, it must also be admitted that it cannot be carried out without expenditure. The new building, which is necessary, would require a considerable sum of money. The services of a curator of sufficient ability and erudition could not be secured without the offer of liberal emoluments; and a museum, cannot be maintained, still less made to grow, without at any rate a small annual allowance for running expenses. The question therefore arises: Can we with our restricted provincial income afford to adopt this policy? It would be easy, I know, for an enthusiastic educationist, who is not responsible to the people for the expenditure of the public funds, to answer this question in the affirmative. But the question is one with which not educationists but legislators have to deal. I may be allowed, however, to point out that not merely this question, but a second must be dealt with: Can we afford, in the present undeveloped condition of our natural resources, and in the face of the competition of other countries, which, with no smaller natural resources, are making greater efforts to develop them, to adopt any other policy than that which is outlined above? To me certainly it seems to be clearly the teaching of experience, that if we wish to direct the flow of capital without undue delay to the development of our resources, we must supply accurate information as to what these resources are and as to their present state of development, such as a well conducted museum only can adequately supply, and we must furnish our youth, by means of a technical school, with the means of obtaining a knowledge of the sciences and arts of which our various industries are applications.

But a few years ago there seemed to be little hope that such a policy of progress would be carried out. Lately, however, our Legislature has shown a new appreciation of the value of the application of scientific knowledge to industrial pursuits, and the founding of the Agricultural School with its Model Farm, and of Mining Schools of an elementary grade, are steps in the right direction, for which the Government deserves, and will doubtless receive, the gratitude of an intelligent public. But gratitude is a sense of favours yet to come; and these first steps

give us confidence in the hope that another step may also be taken, by which our Provincial Museum will be developed and made the nucleus of a technical school.

So far I have dealt with action which can be taken only by the Government. Finally, I would like to refer to the various ways in which this Institute may give material assistance both in the development of the museum and in the establishment of the scientific school. And first, the main work of the Institute, the furthering of scientific research, especially in the department of local natural science, is directly in the line of what the museum is intended to encourage; and every new fact brought to light and every truth established will add so much to the sum of knowledge which the museum is intended to illustrate.

Secondly, no museum can be successfully managed without a library of scientific books containing the most recent results of scientific investigation; and such a library, if it has to be purchased, involves very considerable expenditure. Now our Institute, because of the fact of our publishing Transactions which are considered to be of some value, can obtain at no greater expense than is required to forward copies of our Transactions to scientific societies abroad, a very large portion of the necessary library, the portion which consists of the publications of home and foreign scientific societies. At present we exchange publications with about one hundred learned societies, and we are taking steps to increase the number to three or four hundred. For the small volume which we annually send out, we, in many cases, receive a large volume, or even several volumes in return, so that our library, already valuable, is rapidly increasing in value as in bulk; and this library the Institute will gladly place at the disposal of the curator of the museum.

Thirdly, if we can increase our membership as we hope soon to do, by recruits from the large body of teachers scattered through the Province, who are every year, through the influence and exertions of leading men among themselves, making progress in the knowledge of natural science, we may hope to give material aid to the curator in the completion of his local collections. To render these anything like complete with no undue delay, he

would need to have a corps of local collectors. A corps of paid collectors is perhaps out of the question, but a corps of volunteer collectors may perhaps be organised among the members of the Institute, which could give him very material assistance, providing him not only with specimens to fill up lacunæ in his local collections, but with duplicates which he could utilise in obtaining from abroad, by exchange, specimens which are required for his typical collections and which cannot be obtained at home.

And finally, the Institute may be of assistance to the museum in discharging its functions as the nucleus of a technical school, by providing volunteer lecturers in departments of science in which the curator may need assistance. In efforts which have been made in this direction in the past, our members have been ready to assist, and in an effort such as I have sketched, which would have less of discouragement and more of hope, they may be relied upon to put their shoulders to the wheel.

I think I owe you no apology, though I have occupied so much of your time this evening with a discussion which adds nothing to the sum total of human knowledge, but is of an essentially practical nature. For the maintenance and adequate development of our Provincial Museum is of the very greatest consequence in the work in which we are engaged, of increasing, so far as our efforts can increase it, the knowledge of our local natural science. But while we have this strong scientific interest in urging upon the government a progressive policy in this respect, we have also the interest of all good citizens, believing, as I have no doubt we all do, that scientific interest and practical interest go in this case hand and hand.

